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Detemple

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(54) **SEALING DEVICE FOR SEALING A VERTICAL GAP BETWEEN ADJACENT WALL PANELS, SUCH AS GLASS PANES, WHICH FORM PART OF A MACHINE ENCLOSURE**

USPC 52/223.7, 465, 273; 277/644, 648;
68/235 R
See application file for complete search history.

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(57) **ABSTRACT**

A bottling plant with a machine enclosure, which machine enclosure comprises resilient seals to permit cleaning fluid from inside the machine enclosure to exit through the resilient seals, and a resilient seal structure. The abstract of the disclosure is submitted herewith as required by 37 C.F.R. §1.72(b). As stated in 37 C.F.R. §1.72(b): A brief abstract of the technical disclosure in the specification must commence on a separate sheet, preferably following the claims, under the heading "Abstract of the Disclosure." The purpose of the abstract is to enable the Patent and Trademark Office and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure. The abstract shall not be used for interpreting the scope of the claims. Therefore, any statements made relating to the abstract are not intended to limit the claims in any manner and should not be interpreted as limiting the claims in any manner.

19 Claims, 8 Drawing Sheets

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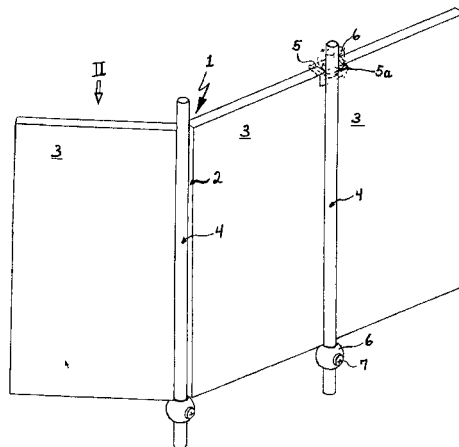
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(52) **U.S. Cl.**
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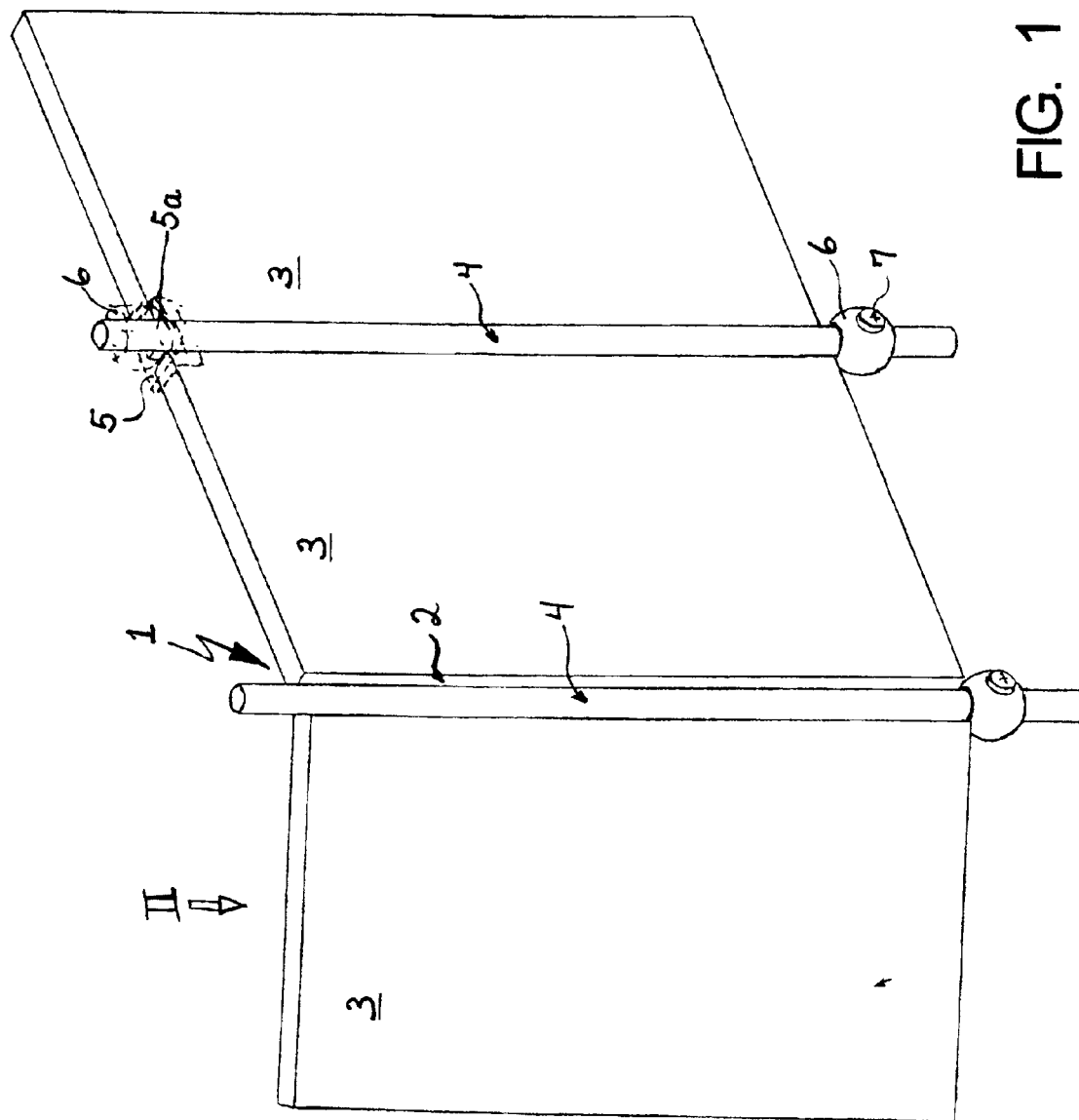
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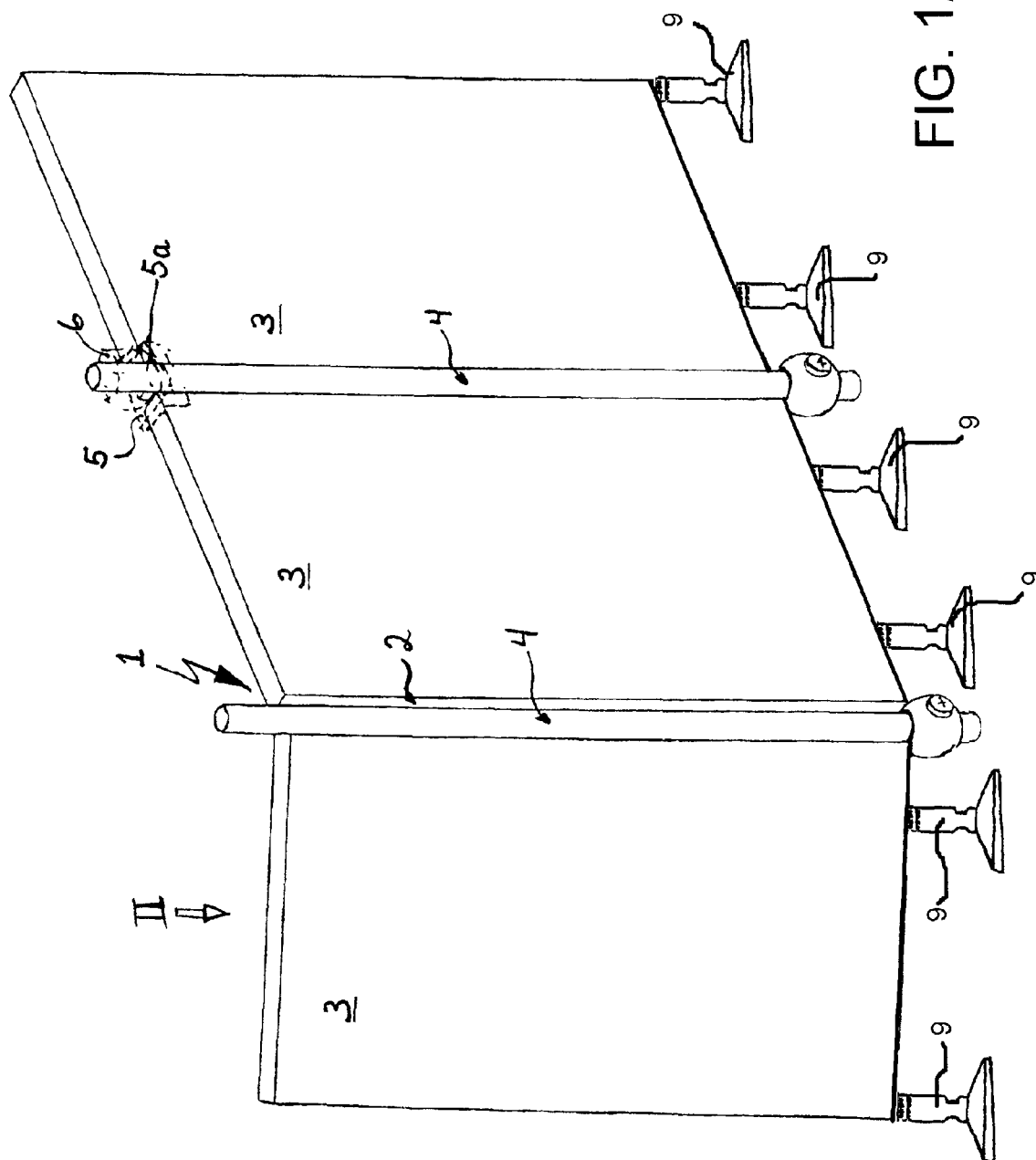


FIG. 1A

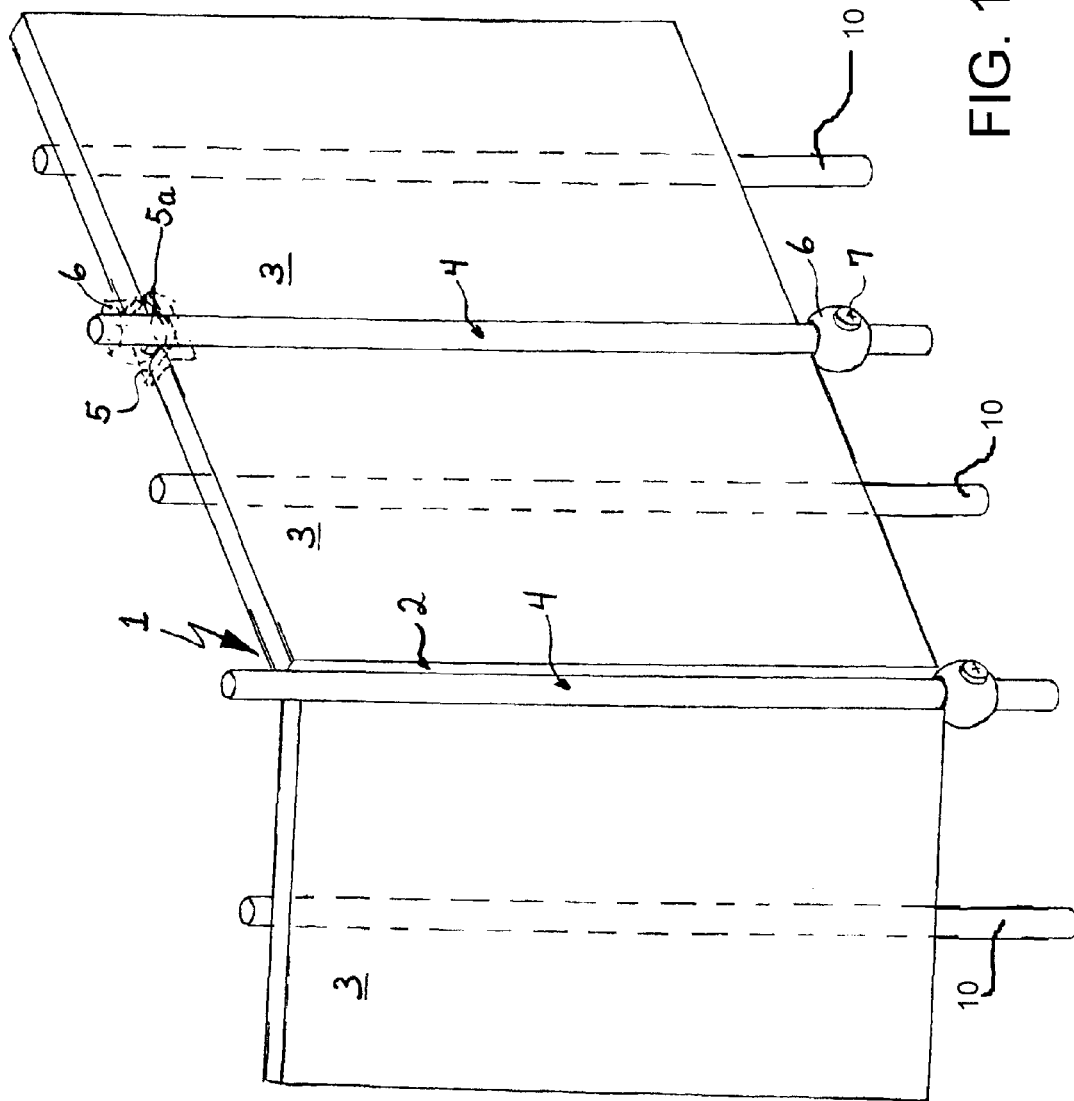


FIG. 1B

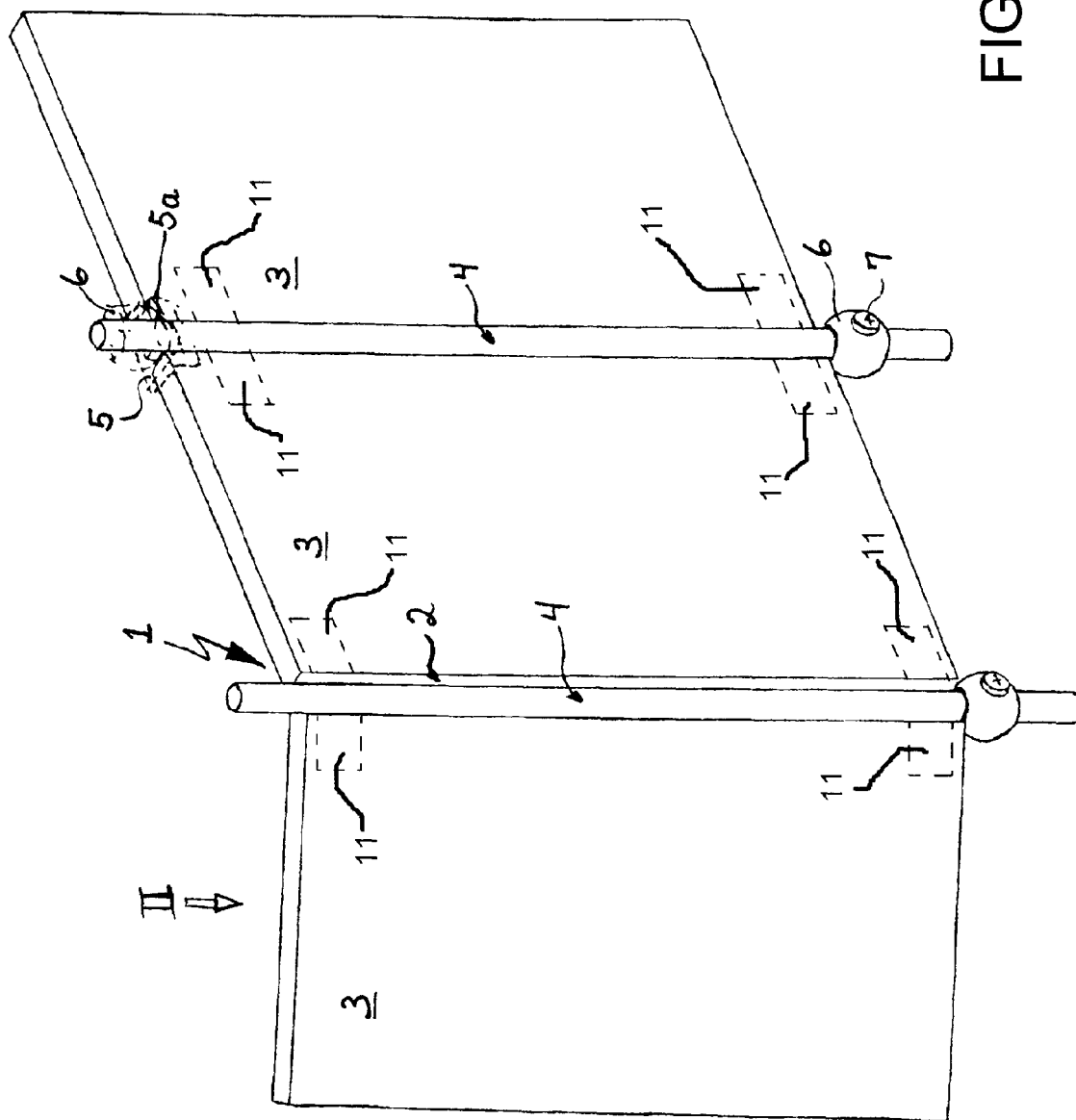


FIG. 1C

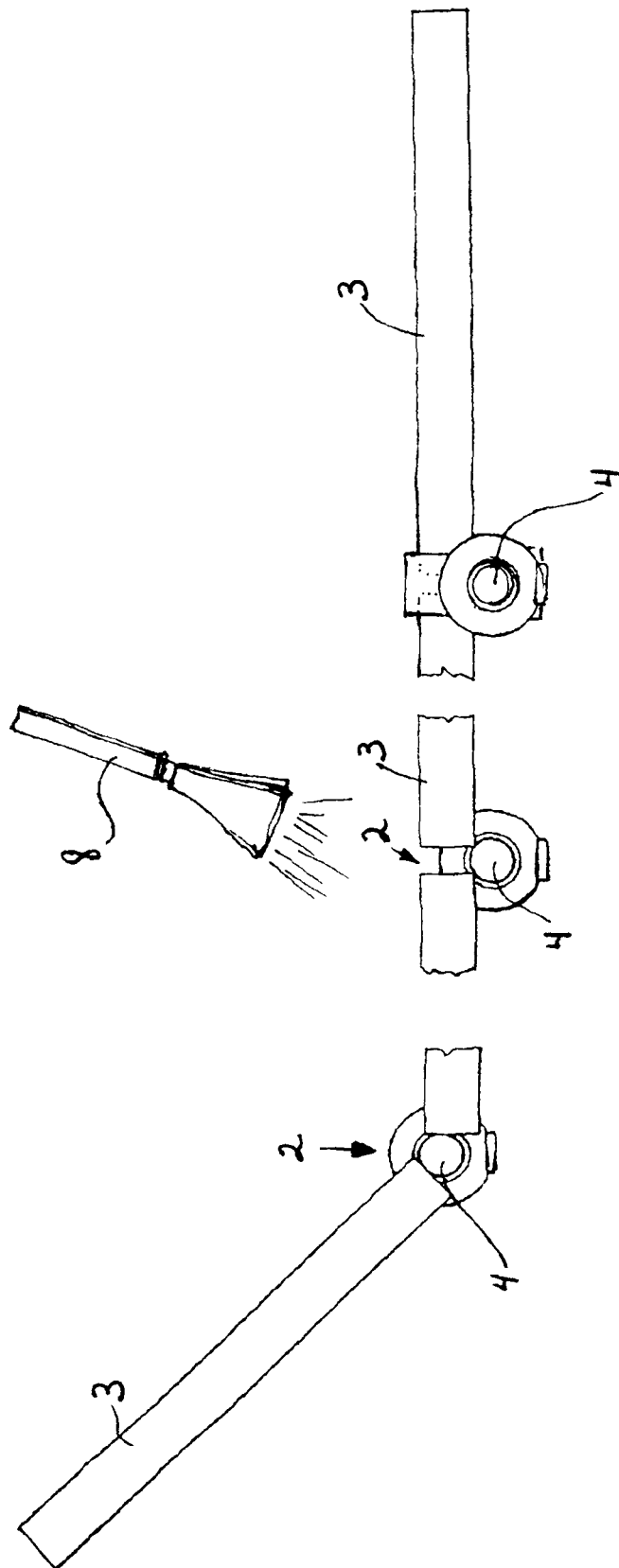
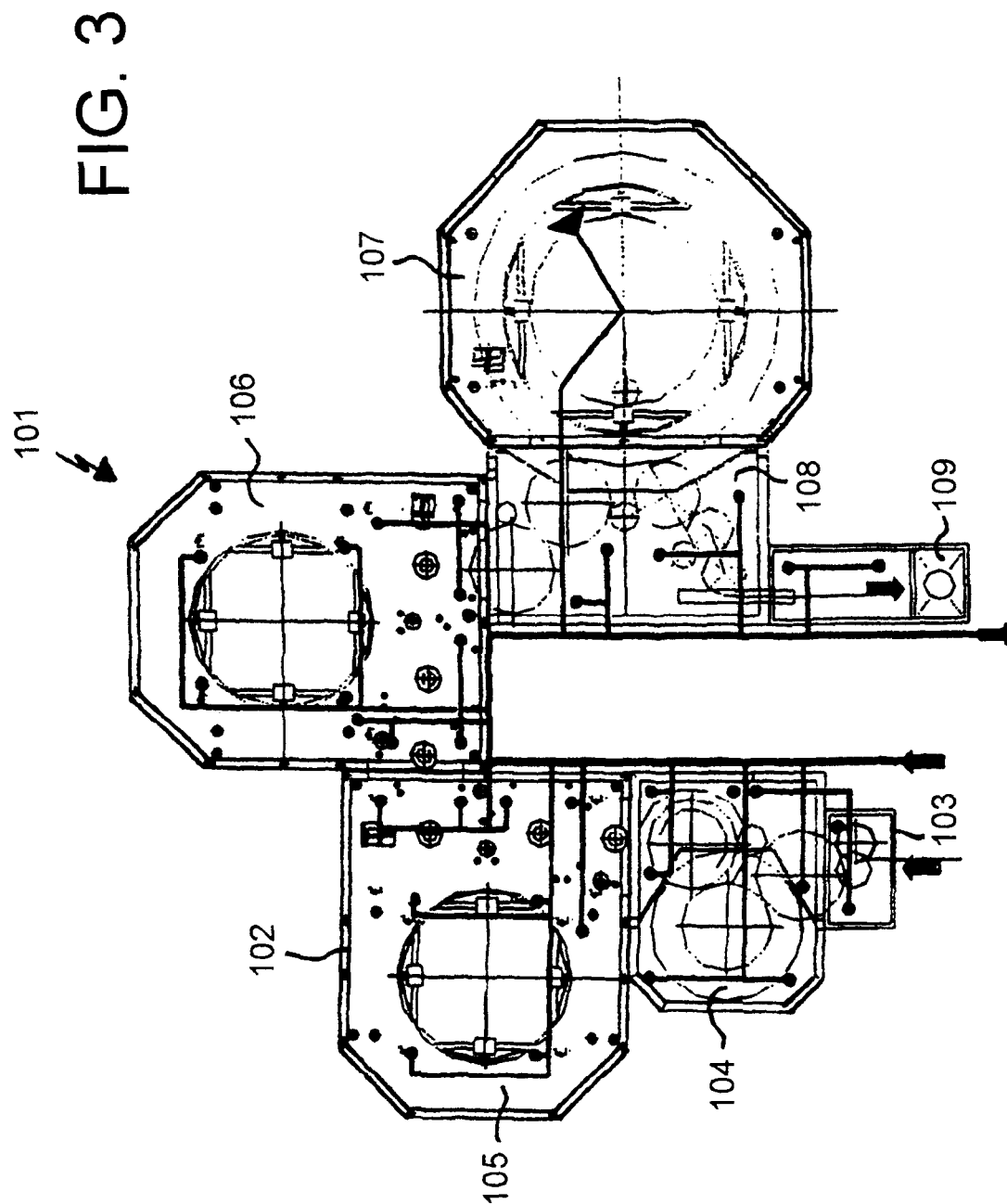


FIG. 2



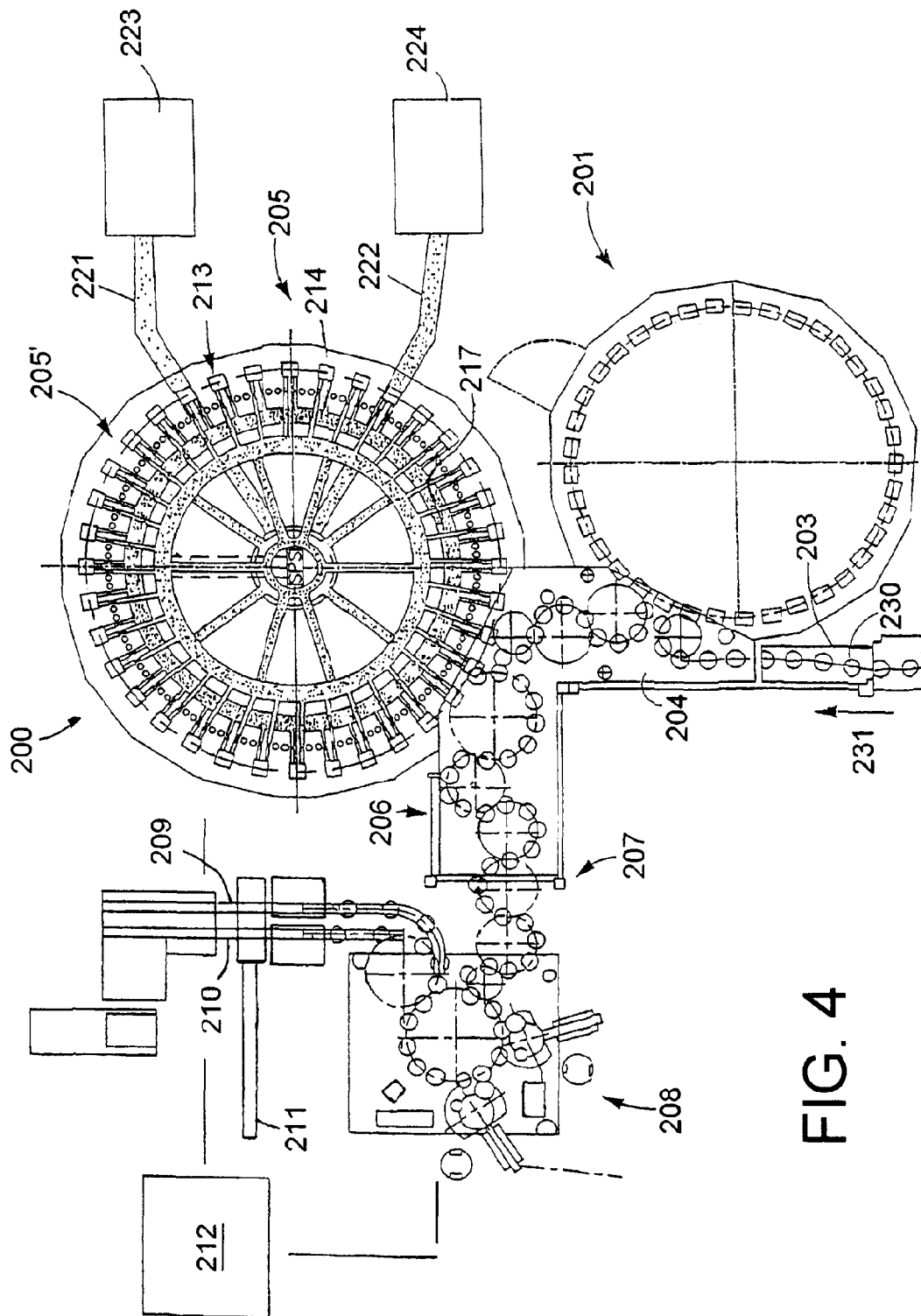
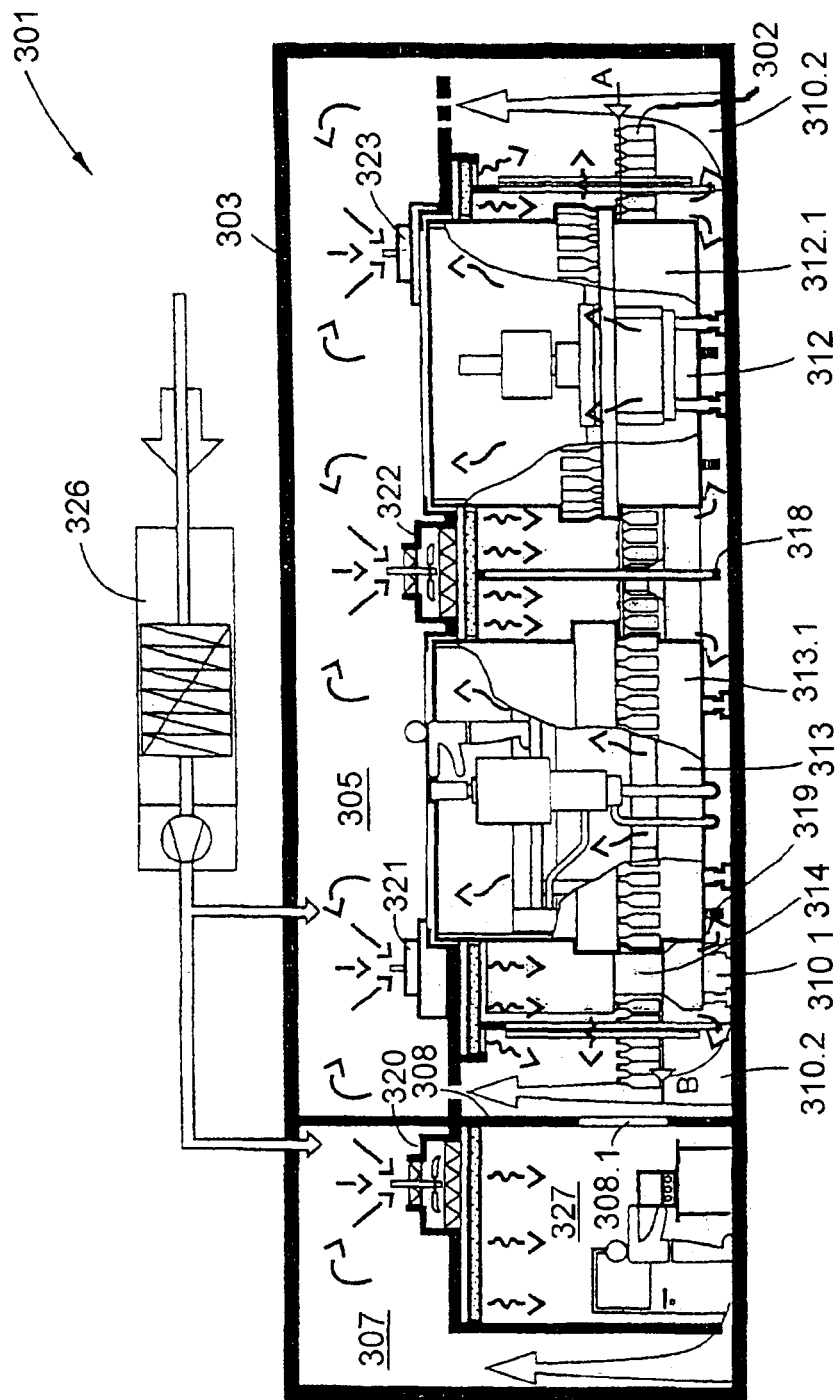


FIG. 4

FIG. 5



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**SEALING DEVICE FOR SEALING A
VERTICAL GAP BETWEEN ADJACENT
WALL PANELS, SUCH AS GLASS PANES,
WHICH FORM PART OF A MACHINE
ENCLOSURE**

CONTINUING APPLICATION DATA

This application is a Continuation-In-Part application of International Patent Application No. PCT/EP2008/009080, filed on Oct. 28, 2008, which claims priority from Federal Republic of Germany Patent Application No. 10 2008 005 606.5, filed on Jan. 22, 2008. International Patent Application No. PCT/EP2008/009080 was pending as of the filing date of this application. The United States was an elected state in International Patent Application No. PCT/EP2008/009080.

BACKGROUND

1. Technical Field

The present application relates to a bottling plant with a machine enclosure, which machine enclosure comprises resilient seals to permit cleaning fluid from inside the machine enclosure to exit through the resilient seals, and a resilient seal structure.

2. Background Information

Background information is for informational purposes only and does not necessarily admit that subsequently mentioned information and publications are prior art.

There are a series of applications in which it is possible to provide machines with a so-called enclosure. This can be possible for different reasons, for instance for sound insulation, for protecting against splashing when liquids are used and to provide a barrier in order to prevent, restrict, and/or minimize anyone inadvertently approaching the correspondingly enclosed machines or to prevent, restrict, and/or minimize anyone approaching them without authorization.

When foodstuffs are packaged, hygiene reasons already make it necessary and/or desired to have such an enclosure. In this case this is a border or barrier around the machines or respectively to protect corresponding transport sections within a production, filling and packing installation, not least on account of environmental protection and safety at work.

Machines that process foodstuffs, may be intensively cleaned, e.g. using high-pressure cleaners. This not only refers to the machines but also to the enclosures.

If the claddings or enclosures of the machines are realized as rigid structural parts, problems can arise during cleaning, for example, in the transition regions from one wall element to another wall element, as the wall elements, may have assembly frames that can themselves act as dirt traps during the cleaning process so that these corners and edges or transition regions, require and/or desire intensive cleaning.

OBJECT OR OBJECTS

An object of which is to be able to clean the transition regions of these types of wall faces, panels or glass panels in an efficient or substantially efficient manner.

SUMMARY

The present application centers on a device for sealing vertical or substantially vertical joints between plate-shaped wall elements, in one possible embodiment between wall faces of components forming a machine enclosure, such as glass panes or the like.

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Using a device of the aforementioned type, this object is achieved according to the present application in that the seal is formed by a sealing cord that is made of resilient material, said sealing cord sealing the joint and being clamped between the two joint ends.

In one possible embodiment of the present application, it has been shown that the reason this solution leads to good cleaning results is because the jet of the high-pressure cleaner, when cleaning the edges of the glass panels, is able to lift the sealing cord in such a manner that the cleaning jet can spray from inside the enclosure to the outside in such a manner that the particles of dirt transported and removed are then also moved outside the enclosure. At the same time, the sealing cord provides a very good seal of the respective joints outside the cleaning periods.

In this case it can be possible when the sealing cord is provided on at least one of its free ends with a tensioning ball that protects, in one possible embodiment, the edges of the glass panels.

As mentioned above, it is provided that the sealing cord is clamped at the outwardly facing outer edge of the ends of the abutting faces of the panel elements in such a manner that when the jet of a high-pressure cleaning device impinges on the interior of the housing, the sealing cord is able to yield.

It can also be possible for the sealing cord to be secured at its upper end in a securing element that engages over the joint to be sealed. Consequently it is possible to provide a rapid assembly possibility in each joint by snapping a sealing cord of this type onto the upper edge region of the glass panels. Once the cord has been snapped on, it simply needs locking or may be locked in at the lower end, for example, of the tensioning ball provided.

According to the present application it can also be provided that the sealing cord is realized for identifying danger areas in a signal color.

Depending on the purpose and structural conditions, it can be provided that the cross section of the sealing cord is round or oval, it being possible in a further development for the sealing cord to be used to adjust the pre-tensioning force in a threaded sleeve or the like at one end.

The above-discussed embodiments of the present invention will be described further herein below. When the word "invention" or "embodiment of the invention" is used in this specification, the word "invention" or "embodiment of the invention" includes "inventions" or "embodiments of the invention", that is the plural of "invention" or "embodiment of the invention". By stating "invention" or "embodiment of the invention", the Applicant does not in any way admit that the present application does not include more than one patentably and non-obviously distinct invention, and maintains that this application may include more than one patentably and non-obviously distinct invention. The Applicant hereby asserts that the disclosure of this application may include more than one invention, and, in the event that there is more than one invention, that these inventions may be patentable and non-obvious one with respect to the other.

BRIEF DESCRIPTION OF THE DRAWINGS

Further features, details and embodiments of the present application are produced on account of the following description and by way of the drawing, in which:

FIG. 1 shows a simplified representation of a detail from an enclosure with sealing cords in the transition regions from one panel to another;

FIG. 1A shows a simplified representation of a detail from an enclosure including stands;

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FIG. 1B shows a simplified representation of a detail from an enclosure including rods or columns;

FIG. 1C shows a simplified representation of a detail from an enclosure including hinges;

FIG. 2 shows a top view according to arrow II in FIG. 1;

FIG. 3 shows a basic schematic plan view of a clean room filling device, which may utilize the device of the present application;

FIG. 4 shows schematically the main components of one possible embodiment example of a system for filling containers, for example, a beverage bottling plant for filling bottles with at least one liquid beverage, in accordance with at least one possible embodiment, in which system or plant could possibly be utilized at least one aspect, or several aspects, of the embodiments disclosed herein; and

FIG. 5 is a simplified view in elevation of a plant comprising the wall parts which may utilize the device of the present application for the aseptic bottling of a liquid in bottles or similar containers.

DESCRIPTION OF EMBODIMENT OR EMBODIMENTS

The device, given the general reference 1, for sealing the vertical or substantially vertical joints, given the reference 2, between two plate-shaped wall elements, e.g. glass panels 3, is formed by a sealing cord 4 made of a resilient material, e.g. a physiologically harmless rubber material.

As can be seen in FIG. 1, for example, a securing element 5 can be provided at the upper region of two adjacent glass panels 3, said securing element, for example, being clipped over the upper end edges and having an accommodating means or a passage 5a for passing through the sealing cord 4.

In order to give the sealing cord 4 the necessary and/or desired tension, it is clamped, for example, on both sides in a securing ball 6, a clamping pin or screw pin 7 being indicated to this end in the Figures, it being possible to tighten said clamping pin or screw pin once the sealing cord has been placed in position and prestressed in order to secure the sealing cord in this way.

Once the sealing cord 4 has been secured, for optimum sealing of the respective joint 2 it lies in line contact on the edges of the glass panels, as represented in the Figures, substantially on the outside of the glass panes. Consequently it is possible that by means of the jet of a high-pressure cleaning element it can be lifted towards the outside, in such a manner that all or substantially all or most of the particles of dirt can then also be transported to the outside.

FIG. 1A shows one possible embodiment of the present application which is similar to that seen in FIG. 1. FIG. 1A shows the device 1, joint 2, panel 3, sealing cord 4, securing element 5, securing ball 6, and screw pin 7, as well as stand elements 9. The stand elements 9 may support the glass panels 3 from the floor. The securing elements 5, which may be clipped or otherwise secured to the panels 3, may hold the glass panels 3 together to produce a wall or partition surrounding or substantially surrounding machinery to dampen and/or reduce noise generated by the machinery. In other possible embodiments, other stands or stand elements or stand arrangements may be utilized.

FIG. 1B shows another possible embodiment of the present application including rods or columns 10. The rods 10 may support the panels 3. In one possible embodiment, one rod or column 10 may support each panel 3. In other embodiments, two or more rods 10 may support each panel 3. The columns 10 may be mounted on the inside of the wall produced by the panels 3, or the columns 10 may be mounted on the outside of

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the wall produced by the panels 3. The rods or columns 10 may be connected to the floor to support the panels 3.

FIG. 1C shows one possible embodiment of the present application utilizing hinges 11. The hinges 11 may connect the panels 3 and support the panels 3. The embodiment seen in FIG. 1A shows two sets of hinges connecting each panel 3 to another panel 3. In other possible embodiments, less hinges or more hinges may be used to connect each panel 3 to another panel 3. In another possible embodiment of the present application, the device 1 may comprise brackets 11. The brackets 11 may hold the glass panels 3 at predetermined angles with respect to one another to form the machine enclosure around machinery.

In one possible embodiment of the present application, which may be seen in FIG. 2, the high-pressure cleaning element 8 may direct a cleaning medium or cleaning fluid toward the glass panels 3. The sealing cord 4 may be disposed between glass panels 3. When the high-pressure cleaning element 8 is spraying or ejecting cleaning medium or cleaning fluid against the panels 3, the sealing cord 4 may yield and thus permit cleaning medium or fluid, as well as dirt, to pass through the gaps between the panels 3. When the high-pressure cleaning element 8 stops spraying liquid or fluid against the panels 3 and cord 4, the tensioned sealing cord 4 may then move back into place between the panels 3 and seal the gap between the glass panels 3.

Naturally, the described possible embodiment of the present application can also be modified in many respects without departing from the basic concept. Thus, the present application is not limited to the represented cross-sectional form of the sealing cord, it can be oval, polygonal or have any other cross-sectional shape, neither is the present application limited to the type of the securing of the sealing cord on the wall elements 3, in this case too other devices can be provided, for instance the version of the sealing cord on a threaded sleeve that can then be screw-connected and tensioned in a stationary thread, e.g. a pedestal of the wall elements.

In one possible embodiment of the present application, the glass panels 3 may be used to enclose machinery and dampen and/or reduce noise.

FIG. 3 may show one possible embodiment of a filling plant for filling and closing glass bottles in a clean room. The walls of the clean room may comprise the wall partitions of the present application. A machine designated in its entirety as 101 for the filling of containers, for example for bottles or cans with beverages, etc., is shown in greater detail in FIG. 3. The complete machine may be enclosed in a housing 102, which may protect the entire interior from contaminants from the outside so that clean room conditions prevail in the interior.

The machine 101 may comprise a container opening 103, through which the bottles to be filled may gain admission to the interior of the machine. The containers may then be sterilized in a sterilization device 104. The containers may move around a circular track together with a plurality of vaporization heads that may direct vaporous H_2O_2 into the interior and the upper outer region of the container. Due to the temperature differences between the vaporized H_2O_2 and the wall of the container, the sterilizing agent may precipitate and form a condensation film. The containers may then be conveyed into a first activation device 105, in which hot air or hot steam may be directed against the outside or the inside of the container. This may initiate a decomposition reaction in the deposited H_2O_2 , in which it may decompose via a number of intermediate steps. During the reaction, any germs or impurities present may be attacked and broken down by the reaction

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products produced intermittently, until essentially only water and a few residual decomposition products may remain.

Because the reaction requires and/or desires some time, once the containers have completed a partial rotation through the first activation device **105**, the containers may also complete another rotation in a second activation device **106** downstream of the first, so that there may be sufficient time for the decomposition reaction to be completed when the end of the second activation device **6** is reached. The bottles may then move into a filling device **107**, in which the bottles may be filled as they move around the machine before they may be closed in a closing device **108**. They then may leave the bottling machine through the container outlet **109**.

To maintain the clean room conditions in the interior of the machine **101**, the interior must be or should be sterilized periodically. The method according to the present application may be performed as follows:

First productive operation of the machine may be stopped, in one possible embodiment the supply of bottles may be interrupted and the various machines in the interior of the machine **101** may be shut down. The cleaning cycle may then be started.

FIG. 4 shows schematically the main components of one possible embodiment example of a system for filling containers, specifically, a beverage bottling plant for filling bottles **230** with at least one liquid beverage, in accordance with at least one possible embodiment, in which system or plant could possibly be utilized at least one aspect, or several aspects, of the embodiments disclosed herein.

FIG. 4 shows a rinsing arrangement or rinsing station **201**, to which the containers, namely bottles **230**, are fed in the direction of travel as indicated by the arrow **231**, by a first conveyer arrangement **203**, which can be a linear conveyer or a combination of a linear conveyer and a starwheel. Downstream of the rinsing arrangement or rinsing station **201**, in the direction of travel as indicated by the arrow **231**, the rinsed bottles **230** are transported to a beverage filling machine **205** by a second conveyer arrangement **204** that is formed, for example, by one or more starwheels that introduce bottles **230** into the beverage filling machine **205**.

The beverage filling machine **205** shown is of a revolving or rotary design, with a rotor **205'**, which revolves around a central, vertical machine axis. The rotor **205'** is designed to receive and hold the bottles **230** for filling at a plurality of filling positions **213** located about the periphery of the rotor **205'**. At each of the filling positions **203** is located a filling arrangement **214** having at least one filling device, element, apparatus, or valve. The filling arrangements **214** are designed to introduce a predetermined volume or amount of liquid beverage into the interior of the bottles **230** to a predetermined or desired level.

The filling arrangements **214** receive the liquid beverage material from a toroidal or annular vessel **217**, in which a supply of liquid beverage material is stored under pressure by a gas. The toroidal vessel **217** is a component, for example, of the revolving rotor **205'**. The toroidal vessel **217** can be connected by means of a rotary coupling or a coupling that permits rotation. The toroidal vessel **217** is also connected to at least one external reservoir or supply of liquid beverage material by a conduit or supply line. In the embodiment shown in FIG. 4, there are two external supply reservoirs **223** and **224**, each of which is configured to store either the same liquid beverage product or different products. These reservoirs **223**, **224** are connected to the toroidal or annular vessel **217** by corresponding supply lines, conduits, or arrangements **221** and **222**. The external supply reservoirs **223**, **224** could be

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in the form of simple storage tanks, or in the form of liquid beverage product mixers, in at least one possible embodiment.

As well as the more typical filling machines having one toroidal vessel, it is possible that in at least one possible embodiment there could be a second toroidal or annular vessel which contains a second product. In this case, each filling arrangement **214** could be connected by separate connections to each of the two toroidal vessels and have two individually-controllable fluid or control valves, so that in each bottle **230**, the first product or the second product can be filled by means of an appropriate control of the filling product or fluid valves.

Downstream of the beverage filling machine **205**, in the direction of travel of the bottles **230**, there can be a beverage bottle closing arrangement or closing station **206** which closes or caps the bottles **230**. The beverage bottle closing arrangement or closing station **206** can be connected by a third conveyer arrangement **207** to a beverage bottle labeling arrangement or labeling station **208**. The third conveyor arrangement may be formed, for example, by a plurality of starwheels, or may also include a linear conveyer device.

In the illustrated embodiment, the beverage bottle labeling arrangement or labeling station **208** has at least one labeling unit, device, or module, for applying labels to bottles **230**. In the embodiment shown, the labeling arrangement **208** is connected by a starwheel conveyer structure to three output conveyer arrangements: a first output conveyer arrangement **209**, a second output conveyer arrangement **210**, and a third output conveyer arrangement **211**, all of which convey filled, closed, and labeled bottles **230** to different locations.

The first output conveyer arrangement **209**, in the embodiment shown, is designed to convey bottles **230** that are filled with a first type of liquid beverage supplied by, for example, the supply reservoir **223**. The second output conveyer arrangement **210**, in the embodiment shown, is designed to convey bottles **230** that are filled with a second type of liquid beverage supplied by, for example, the supply reservoir **224**. The third output conveyer arrangement **211**, in the embodiment shown, is designed to convey incorrectly labeled bottles **230**. To further explain, the labeling arrangement **208** can comprise at least one beverage bottle inspection or monitoring device that inspects or monitors the location of labels on the bottles **230** to determine if the labels have been correctly placed or aligned on the bottles **230**. The third output conveyer arrangement **211** removes any bottles **230** which have been incorrectly labeled as determined by the inspecting device.

The beverage bottling plant can be controlled by a central control arrangement **212**, which could be, for example, computerized control system that monitors and controls the operation of the various stations and mechanisms of the beverage bottling plant.

The plant designated **301** in general in FIG. 5 is used for the aseptic bottling of a liquid in containers or bottles under clean room conditions, for example of a sensitive and/or highly perishable liquid such as a milk product, fruit juice or similar product, for example, or for the bottling of pharmaceutical products.

The plant **301** comprises essentially an outer housing **303** which encloses an interior which is essentially tightly closed from the exterior, and which is divided into an upper area and a lower area by a false floor/ceiling. The upper area forms, over the larger portion of the horizontal projection in FIG. 5, a plenum **305** (ceiling space or intermediate room) and an auxiliary room **307** which is separated from the plenum **305**. Both the plenum **305** and the auxiliary room **307** are tall

enough that the rooms can be entered by persons standing upright, e.g. to perform repair or maintenance work.

The space below the false floor/ceiling is divided by vertical walls **308** with sealed windows **308.1** into, among other things, a personnel entry airlock and a sterile space, which in the plant illustrated in FIG. **5** is located below the plenum **305**. For its part, the sterile room is in turn divided by a partition or insulating wall that encloses the machines used in the plant **301** into an inner clean room area **310.1** and an outer security area **310.2**.

The partition or insulating wall is realized, at least in part, in the form of a glass wall, so that the machines that are installed in the clean room segment **310.1** are visible from the security area **310.2**, and thus the proper operation of these machines, among other things, can be observed.

In at least one possible embodiment of the application, the partition or insulating walls may be the partition walls according to the present application, which comprise the wall parts **2** and **2a** and the gap plates **7a**, **7b**, and **7c**.

In the illustrated embodiment, in the clean room area **310.1** there are a rinser **312** which, among other things, sterilizes the bottles **302** that have already been cleaned, a filling machine **313** to fill the sterilized bottles **302** with the liquid to be bottled, a capper **314** to close the bottles and transport devices to transport the bottles **302** between the rinser **312**, the filling machine **313** and the capper **314**. The rinser **312**, the filling machine **313** and the capper **314** are all machines with a rotary design and a rotating rotor.

The empty bottles **302** are fed in the direction indicated by the Arrow A in FIG. **5** by means of a conveyor over the security area **310.2** and through an opening or lock in the wall to the rinser **312**. The filled and capped bottles are transported away in the direction indicated by the Arrow B in FIG. **5** by means of the conveyor through an opening or airlock in the wall, first into the security area **310.2** and from there out of the housing **303**.

The wall hermetically seals the clean room area **310.1**, including the vicinity of the underside of the false floor/ceiling, off from the security area. In the vicinity of the floor, there are openings in the wall for the passage of air from the clean room area **310.1** into the security area **310.2**.

The rinser **312** and the filling machine **313** each have a shield wall or cylindrical shield **312.1** or **313.1** that enclose the respective machine and/or its rotor. These shields are each essentially in the shape of a hollow cylinder that lies with its axis equi-axial with the vertical machine axis and is open on the bottom and top of the machine. Because the machines generally stand on the floor with feet, the lower edge or the bottom opening of each shield **312.1** or **313.1** is at some distance from the floor, so that between the floor and the lower edge of each shield **312.1** and **313.1** there is a ring-shaped opening for the entry of air from the space surrounding the respective machine into the interior of the shield **312.1** or **313.1**. In the vicinity of the upper end, the shields **312.1** and **313.1** are connected in a sealed manner through the false floor/ceiling, where they are covered by a grid or screen **312.2** or **313.2**, for example, so that although air can flow out of the interior of the respective cover **312.1** or **313.1** into the plenum **305**, the false floor/ceiling is still accessible in the area of the shields **312.1** and **313.1**.

The cylindrical shields **312.1** and **313.1** provide several advantages. In one possible embodiment, the cylindrical shields **312.1** and **313.1** can extend all the way to, and possibly beyond, the false floor/ceiling. Such a design essentially encloses the annular space above the rinser and the filling machine, thus minimizing the space of the clean room where sterile air needs to continuously be introduced and to continu-

ously flow. Further, the cylindrical shields **312.1** and **313.1** minimize or substantially reduce the size of the clean room area where sterile air needs to continuously be introduced and to continuously flow. Without the shields **312.1** and **313.1**, sterile air would need to occupy a substantially larger area of the clean room, which would require more work from the filters **321**, **322**, and **323** and distribution ducts associated with the filters **321**, **322**, **323**. A smaller area to fill with sterile air would result in lower energy use, lower costs, and less wear and tear on the filters and distribution ducts, possibly resulting in fewer repairs and less maintenance work.

A further advantage of the extension of the cylindrical shields **312.1** and **313.1** to or beyond the false floor/ceiling is that access is permitted to the machines inside the shields for maintenance or repair purposes. Further, since the cylindrical shields **312.1** and **313.1** sit off the floor and create a ring-shaped space around their respective machines, sterile air is permitted to flow from the clean room area surrounding the shields **312.1** and **313.1**, through the ring-shaped space. The air then moves upward into the inside of the shields, then out through vents in the false floor/ceiling. This special upward flow of sterile air permits repairs or maintenance to be performed to the machines on the inside of the shields **312.1** and **313.1** without contaminating the sterile air in the clean room.

A further advantage of the cylindrical shields **312.1** and **313.1** is the protection of the sterile air in the clean room area from contaminates which may be generated from the rinser or filling machine. Since the rinser and filling machine operate within the confines of the shields **312.1** and **313.1**, and the air inside the shields flows up and out through a vent in the false floor/ceiling, any airborne contaminates generated by the machines flow out and away from the sterile environment. The machines are effectively substantially sealed off from the clean room area, and any contaminates produced during the machines' operation are essentially kept from entering the clean room area and contaminating the sterilized air therein.

In the clean room area **310.1** there are additional partitions **318** and **319**, and in particular a partition **318** between the rinser **312** and the filling machine **313**, as well as a partition **319** between the filling machine **313** and the capper **314**. In the illustrated embodiment, the partitions each form air passage openings on the floor. They also have openings to make possible the transfer of bottles between the individual sections.

In the false floor/ceiling there are a plurality of filtering devices **320**, **321**, **322**, and **323** to produce sterile air by filtering. The filtering devices **320**, **321**, **322**, and **323** are used not only for filtering, but can also be used to heat or cool the air. In addition to a filter and a fan, in such an application there can also be a heating or cooling element that is formed by a heat exchanger.

By means of the filtering device **320**, air is sucked out of the auxiliary space **307** and filtered, i.e. it is introduced into the personnel entry airlock in the form of sterile air. In the vicinity of the bottom, the personnel entry airlock has an air outlet opening that empties into a vertical air duct, by means of which the air can flow out of the personnel entry airlock back into the auxiliary room **307**.

With the filter device **321**, air is sucked out of the plenum **305** and filtered, i.e. the greater part of it is blown in the form of sterile air into the portion of the clean room area **310.1** that is occupied by the capper **314**, and partly also into a hollow cylindrical shield of the capper **314**, so that the working and capping area of the capper receive a constant flow of with sterile air. A small portion of the filtered sterile air supplied by the filter device **321** gets into the security area **310.2**.

From the filtering device **322**, air is sucked out of the plenum **305** and introduced filtered in equal parts on both sides of the partition **318**, i.e. in the form of sterile air into the portion of the clean room area **310.1** occupied by the rinser **312** and into the area occupied by the filling machine **313**. The filtering device **323** also sucks air out of the plenum **305** and introduces it into the portion of the clean room area **310.1** occupied by the rinser **312**, and in particular so that at least a portion of the airflow generated by the filtering device **323** flows downward along the inside of the partition, and thereby also forms an air curtain at the airlock opening, at which the bottles **302** to be filled are transported in the upright position from the security area **310.2** into the clean room area **310.1** or to the rinser **312**. A similar air curtain of filtered and sterile air is also formed at the airlock opening, at which the filled and capped bottles **302** travel out of the clean room area **310.1** into the security area **310.2**.

As illustrated by the arrow that represents the airflow, the majority of the airflow generated by the filtering devices **321**, **322**, and **323** flows upward via the interior of the shields **312.1** and **313.1** and then returns to the plenum **305** at the top of the respective shield. A portion of the airflow generated by the filtering devices **321**, **322**, and **323** also flows through the openings **16** out of the clean room area **310.1** into the security area **310.2** and, like the sterile air from the filtering device **321**, is introduced directly into the security area **310.2** and flows back into the plenum **305** via ventilation openings provided in the false floor/ceiling.

In another possible embodiment, a portion of the airflow generated by the filtering devices **321**, **322**, and **323** also flows through the openings out of the clean room area **310.1** into the security area **310.2** and, like the sterile air introduced directly into the security area **310.2** by the filtering device **321**, flows back into the plenum **305** via at least one ventilation opening provided in the false floor/ceiling.

In the exemplary embodiment illustrated, the filtering devices **321**, **322**, and **323** have distribution ducts respectively for an optimal air distribution on the underside of the false floor/ceiling.

By means of the air circulation system formed by the filtering devices **320**, **321**, **322**, and **323**, the spaces that are supplied by these devices are maintained at a specified temperature, for example at a room or air temperature in the range of approximately twenty to twenty-two degrees Celsius and at a specified relative humidity, which can be less than or equal to seventy percent, for example.

In FIG. 5, **326** is an external air-conditioning unit which, among other things, has a filter stage and an air-conditioning stage, and by means of which the plenum **305** and the auxiliary space **307** are supplied with filtered and air-conditioned fresh air, i.e. air set to a temperature preferably in the range between twenty degrees Celsius and twenty-two degrees Celsius and to a relative humidity of equal to or less than seventy percent.

The air-conditioning unit **326** as well as the individual filtering devices **320**, **321**, **322** and **323** are regulated so that the air pressure in the sterile space **310** is in any case higher than atmosphere pressure, and higher than the air pressure in the additional rooms adjacent to the sterile room **310**, such as the plenum **305**, the auxiliary room **307**, the personnel entry airlock, etc. The external air-conditioning unit **326** and the filtering devices **320** are also regulated so that the pressure in the plenum **305**, in the auxiliary room **307** and in the personnel entry airlock and in the rooms adjacent to them is above the atmospheric pressure outside the housing **303**. The air-conditioning unit **326** compensates for the air losses that

occur on account of, among other things, the openings for the introduction and removal of containers and caps into and from the clean room.

The plant **301** is designed so that in the clean room **310.1**, the Clean Room Class **100** (approximately 35,000 particles per m³ of air) required for aseptic production is achieved. On advantage of the plant **301**, among others, is that the sterile space **310** itself has a relatively small volume, which significantly reduces, among other things, the costs for air conditioning and air treatment. An additional essential advantage is that in the event of any operational interruptions, the interiors of the shields **312.1** and **313.2** are accessible, i.e. repair and maintenance interventions can be carried out on the rinser **312** and on the filling machine **313**, and namely via the upper cover **312.2** or **313.2** from the plenum **305**. Because of the special routing of the airflow out of the areas surrounding the rinser **312** and the filling machine **313** upward through the shields **312.1** and **313.1**, in the space **310** outside the shields, i.e. in the sterile area itself, the conditions of Clean Room Class **100** can be maintained even during repairs and maintenance operations on the rinser **312** and on the filling machine **313**.

FIG. 5 also shows a working or waiting room **327** for the operating personnel. This room **327**, which is also supplied with filtered, sterile air via a filtering device **320** from the auxiliary space **307**, is accessible via the personnel entry airlock. The room **310** can be reached if necessary from the room **327** or via a corresponding door. In the partition **8** which also separates the room **327** from the room **310**, there is also at least one view window **308.1**.

With a device **1** for sealing vertical or substantially vertical joints **2** between plate-shaped wall elements **3**, in one possible embodiment between wall surfaces of components forming a machine housing, such as glass panes or the like, in one possible embodiment the transition regions of such wall surfaces, panels or glass panes are to be in one possible embodiment easy to clean. This is achieved by the sealing being formed by a sealing cord **4** made of elastic material that seals the joint **2** and is clamped between the two joint ends.

One feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in a device **1** for sealing vertical or substantially vertical joints **2** between plate-shaped wall elements **3**, in one possible embodiment between wall faces of components forming a machine enclosure, such as glass panels or the like, wherein the seal is formed by a sealing cord **4** that is made of a resilient material, said sealing cord sealing the joint **2** and being clamped between the two joint ends.

Another feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in the device, wherein the sealing cord **4** is provided on at least one of its free ends with a tensioning ball **6** that protects, in one possible embodiment, the edges of the glass panels.

Yet another feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in the device, wherein the sealing cord **4** is clamped at the outwardly facing outer edge of the ends of the abutting faces of the panel elements **3** in such a manner that when the jet of a high-pressure cleaning device impinges on the interior of the housing, the sealing cord **4** is able to yield.

Still another feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in the device, wherein the sealing cord **4** is secured at its upper end in a securing element **5** that engages over the joint to be sealed.

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A further feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in the device, wherein the sealing cord **4** is realized for identifying danger areas in a signal color.

Another feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in the device, wherein the cross section of the sealing cord **4** is round or oval.

Yet another feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in the device, wherein the sealing cord **4** is used to adjust the pre-tensioning force in a threaded sleeve or the like at one end.

Still another feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in a machine enclosure configured to enclose machinery in a beverage bottling plant, said machine enclosure comprising: a plurality of glass panels being configured and disposed to dampen noise; each of said plurality of glass panels comprising a top portion and a bottom portion, which bottom portion is disposed below said top portion; each of said plurality of glass panels comprising an interior surface and an exterior surface; said interior surface being configured and disposed to face inwardly into said machine enclosure; said exterior surface being configured and disposed to face outwardly away from said machine enclosure; said plurality of glass panels comprising a pair of glass panels, which pair of glass panels are disposed adjacent to one another; said pair of glass panels comprising a first glass panel and a second glass panel; a resilient sealing cord being configured and disposed to seal a gap between said first glass panel and said second glass panel; a sealing cord securing element being configured and disposed to: hold said first glass panel and said second glass panel together; secure said resilient sealing cord adjacent said top portion of said first glass panel and said top portion of said second glass panel; and secure said resilient sealing cord adjacent said exterior surface of said first glass panel and said second glass panel; a first sealing cord tensioning element being configured and disposed to: tension said cord sufficiently highly to seal the gap between said first glass panel and said second glass panel upon operation of machinery in said machine enclosure and prior to pressurized cleaning fluid impinging upon said interior surfaces of said pair of glass panels and said resilient sealing cord; hold said resilient sealing cord between said top portion of said first glass panel and said top portion of said second glass panel; and protect an upper corner of said first glass panel and an upper corner of said second glass panel; a second sealing cord tensioning element being configured and disposed to: tension said cord sufficiently highly to seal the gap between said first glass panel and said second glass panel upon operation of machinery in said machine enclosure and prior to pressurized cleaning fluid impinging upon said interior surfaces of said pair of glass panels and said resilient sealing cord; hold said resilient sealing cord between said bottom portion of said first glass panel and said bottom portion of said second glass panel; and protect a lower corner of said first glass panel and a lower corner of said second glass panel; said resilient sealing cord being tensioned sufficiently loosely to permit said resilient sealing cord to yield, upon pressurized cleaning fluid impinging upon said interior surfaces of said pair of glass panels and said resilient sealing cord, and permit cleaning of said machine enclosure and permit fluid to flow through a gap between said first glass panel and said second glass panel and said resilient sealing cord, from inside said machine enclosure to outside said machine enclosure.

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A further feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in the machine enclosure, wherein: said first sealing cord tensioning element is configured and disposed to protect the edges of said first glass panel and said second glass panel; and said second sealing cord tensioning element is configured and disposed to protect the edges of said first glass panel and said second glass panel.

Another feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in the machine enclosure, wherein said sealing cord is realized for identifying danger areas in a signal color.

Yet another feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in the machine enclosure, wherein the cross section of said sealing cord is round or oval.

Still another feature or aspect of an embodiment is believed at the time of the filing of this patent application to possibly reside broadly in the machine enclosure according to Claim **4**, wherein: said first sealing cord tensioning element comprises a threaded sleeve; said second sealing cord tensioning element comprises a threaded sleeve; and said threaded sleeve of said first sealing cord tensioning element and said threaded sleeve of said second sealing cord tensioning element are configured to adjust the pre-tensioning force of said sealing cord.

The components disclosed in the various publications, disclosed or incorporated by reference herein, may possibly be used in possible embodiments of the present invention, as well as equivalents thereof.

The purpose of the statements about the technical field is generally to enable the Patent and Trademark Office and the public to determine quickly, from a cursory inspection, the nature of this patent application. The description of the technical field is believed, at the time of the filing of this patent application, to adequately describe the technical field of this patent application. However, the description of the technical field may not be completely applicable to the claims as originally filed in this patent application, as amended during prosecution of this patent application, and as ultimately allowed in any patent issuing from this patent application. Therefore, any statements made relating to the technical field are not intended to limit the claims in any manner and should not be interpreted as limiting the claims in any manner.

The appended drawings in their entirety, including all dimensions, proportions and/or shapes in at least one embodiment of the invention, are accurate and are hereby included by reference into this specification.

The background information is believed, at the time of the filing of this patent application, to adequately provide background information for this patent application. However, the background information may not be completely applicable to the claims as originally filed in this patent application, as amended during prosecution of this patent application, and as ultimately allowed in any patent issuing from this patent application. Therefore, any statements made relating to the background information are not intended to limit the claims in any manner and should not be interpreted as limiting the claims in any manner.

All, or substantially all, of the components and methods of the various embodiments may be used with at least one embodiment or all of the embodiments, if more than one embodiment is described herein.

The purpose of the statements about the object or objects is generally to enable the Patent and Trademark Office and the public to determine quickly, from a cursory inspection, the nature of this patent application. The description of the object

or objects is believed, at the time of the filing of this patent application, to adequately describe the object or objects of this patent application. However, the description of the object or objects may not be completely applicable to the claims as originally filed in this patent application, as amended during prosecution of this patent application, and as ultimately allowed in any patent issuing from this patent application. Therefore, any statements made relating to the object or objects are not intended to limit the claims in any manner and should not be interpreted as limiting the claims in any manner.

All of the patents, patent applications and publications recited herein, and in the Declaration attached hereto, are hereby incorporated by reference as if set forth in their entirety herein except for the exceptions indicated herein.

The summary is believed, at the time of the filing of this patent application, to adequately summarize this patent application. However, portions or all of the information contained in the summary may not be completely applicable to the claims as originally filed in this patent application, as amended during prosecution of this patent application, and as ultimately allowed in any patent issuing from this patent application. Therefore, any statements made relating to the summary are not intended to limit the claims in any manner and should not be interpreted as limiting the claims in any manner.

It will be understood that the examples of patents, published patent applications, and other documents which are included in this application and which are referred to in paragraphs which state "Some examples of . . . which may possibly be used in at least one possible embodiment of the present application . . ." may possibly not be used or useable in any one or more embodiments of the application.

The sentence immediately above relates to patents, published patent applications and other documents either incorporated by reference or not incorporated by reference.

Some examples of wall supports and/or partitions supports, which may possibly be utilized or adapted for use with at least one possible embodiment of the present application, may possibly be found in the following U.S. Pat. No. 3,986,314, having the title "Ceiling assembly with removable partition walls," published on Oct. 19, 1976; U.S. Pat. No. 4,344,475, having the title "Office partition interconnector assembly," published on Aug. 17, 1982; No. 5,228,254, having the title "Wall system," published on Jul. 20, 1993; No. 6,799,404, having the title "Wall panel assembly and method of assembly," published on Oct. 5, 2004; No. 7,093,398, having the title "Wall panel assembly and method of assembly," published on Aug. 22, 2006; and No. 7,448,945, having the title "Clean work booth," published on Nov. 11, 2008.

The following patents, patent applications or patent publications, are hereby incorporated by reference as if set forth in their entirety herein except for the exceptions indicated herein: DE 197 23 954 A, having the following English translation of the German title, "Clean room," published on Mar. 26, 1998; and DE 20 2004 001 619 U, having the following English translation of the German title, "Plant for filling bottles under aseptic conditions with foodstuffs or pharmaceuticals comprises filling machine and sealing machine in clean room environment, each machine having housing connected to air outlet," published on May 19, 2204.

U.S. patent application Ser. No. 12/818,801, filed on Jun. 18, 2010, having inventor Thomas DETEMPLE, and title "BEVERAGE BOTTLING PLANT OR FOODSTUFF CONTAINING ELEMENT FILLING PLANT EACH HAVING A CLEAN ROOM AND EACH HAVING APPARATUS FOR ASSISTING IN THE CLEANING OF THE CLEAN ROOM, AND A METHOD OF CLEANING THE CLEAN

ROOM," and its corresponding Federal Republic of Germany Patent Application No. 10 2007 062 813.9, filed on Dec. 21, 2007, and International Patent Application No. PCT/EP2008/009918, filed on Nov. 22, 2008, having WIPO Publication No. WO 2009/083072 and inventor Thomas DETEMPLE are hereby incorporated by reference as if set forth in their entirety herein.

All of the patents, patent applications or patent publications, except for the exceptions indicated herein, which were cited in the German Office Action dated Dec. 10, 2008, and/or cited elsewhere are hereby incorporated by reference as if set forth in their entirety herein, as follows: DE 71 39 295, having the German title "Dichtungsschnur fuer Dehnungsfugen in Bauwerken," published on Feb. 3, 1972.

All of the patents, patent applications or patent publications, except for the exceptions indicated herein, which were cited in the International Search Report dated Feb. 18, 2009, and/or cited elsewhere are hereby incorporated by reference as if set forth in their entirety herein, as follows: U.S. Pat. No. 4,223,660, having the title "REMOVABLE OVEN DOOR GASKET," published on Sep. 23, 1980; and DE 938 281, having the German title "Schutzvorrichtung," published on Jan. 26, 1956.

The patents, patent applications, and patent publications listed above in the preceding paragraphs are herein incorporated by reference as if set forth in their entirety except for the exceptions indicated herein. The purpose of incorporating U.S. patents, Foreign patents, publications, etc. is solely to provide additional information relating to technical features of one or more embodiments, which information may not be completely disclosed in the wording in the pages of this application. However, words relating to the opinions and judgments of the author and not directly relating to the technical details of the description of the embodiments therein are not incorporated by reference. The words all, always, absolutely, consistently, preferably, guarantee, particularly, constantly, ensure, necessarily, immediately, endlessly, avoid, exactly, continually, expediently, ideal, need, must, only, perpetual, precise, perfect, require, requisite, simultaneous, total, unavoidable, and unnecessary, or words substantially equivalent to the above-mentioned words in this sentence, when not used to describe technical features of one or more embodiments of the patents, patent applications, and patent publications, are not considered to be incorporated by reference herein.

The corresponding foreign and international patent publication applications, namely, Federal Republic of Germany Patent Application No. 10 2008 005 606.5, filed on Jan. 22, 2008, having inventor Thomas DETEMPLE, and DE-OS 10 2008 005 606.5 and DE-PS 10 2008 005 606.5, and International Application No. PCT/EP2008/009080, filed on Oct. 28, 2008, having WIPO Publication No. WO 2009/092407 and inventor Thomas DETEMPLE, are hereby incorporated by reference as if set forth in their entirety herein, except for the exceptions indicated herein, for the purpose of correcting and explaining any possible misinterpretations of the English translation thereof. In addition, the published equivalents of the above corresponding foreign and international patent publication applications, and other equivalents or corresponding applications, if any, in corresponding cases in the Federal Republic of Germany and elsewhere, and the references and documents cited in any of the documents cited herein, such as the patents, patent applications and publications, except for the exceptions indicated herein, are hereby incorporated by reference as if set forth in their entirety herein.

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The purpose of incorporating the corresponding foreign equivalent patent application(s), that is, PCT/EP2008/009080 and German Patent Application 10 2008 005 606.5, is solely for the purpose of providing a basis of correction of any wording in the pages of the present application, which may have been mistranslated or misinterpreted by the translator. However, words relating to opinions and judgments of the author and not directly relating to the technical details of the description of the embodiments therein are not to be incorporated by reference. The words all, always, absolutely, consistently, preferably, guarantee, particularly, constantly, ensure, necessarily, immediately, endlessly, avoid, exactly, continually, expediently, ideal, need, must, only, perpetual, precise, perfect, require, requisite, simultaneous, total, unavoidable, and unnecessary, or words substantially equivalent to the above-mentioned word in this sentence, when not used to describe technical features of one or more embodiments of the patents, patent applications, and patent publications, are not generally considered to be incorporated by reference herein.

Statements made in the original foreign patent applications PCT/EP2008/009080 and DE 10 2008 005 606.5 from which this patent application claims priority which do not have to do with the correction of the translation in this patent application are not to be included in this patent application in the incorporation by reference.

Any statements about admissions of prior art in the original foreign patent applications PCT/EP2008/009080 and DE 10 2008 005 606.5 are not to be included in this patent application in the incorporation by reference, since the laws relating to prior art in non-U.S. Patent Offices and courts may be substantially different from the Patent Laws of the United States.

All of the references and documents cited in any of the documents cited herein, except for the exceptions indicated herein, are hereby incorporated by reference as if set forth in their entirety herein. All of the documents cited herein, referred to in the immediately preceding sentence, include all of the patents, patent applications and publications cited anywhere in the present application.

The description of the embodiment or embodiments is believed, at the time of the filing of this patent application, to adequately describe the embodiment or embodiments of this patent application. However, portions of the description of the embodiment or embodiments may not be completely applicable to the claims as originally filed in this patent application, as amended during prosecution of this patent application, and as ultimately allowed in any patent issuing from this patent application. Therefore, any statements made relating to the embodiment or embodiments are not intended to limit the claims in any manner and should not be interpreted as limiting the claims in any manner.

The details in the patents, patent applications and publications may be considered to be incorporable, at applicant's option, into the claims during prosecution as further limitations in the claims to patentably distinguish any amended claims from any applied prior art.

The purpose of the title of this patent application is generally to enable the Patent and Trademark Office and the public to determine quickly, from a cursory inspection, the nature of this patent application. The title is believed, at the time of the filing of this patent application, to adequately reflect the general nature of this patent application. However, the title may not be completely applicable to the technical field, the object or objects, the summary, the description of the embodiment or embodiments, and the claims as originally filed in this patent application, as amended during prosecution of this patent

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application, and as ultimately allowed in any patent issuing from this patent application. Therefore, the title is not intended to limit the claims in any manner and should not be interpreted as limiting the claims in any manner.

The abstract of the disclosure is submitted herewith as required by 37 C.F.R. §1.72(b). As stated in 37 C.F.R. §1.72 (b):

A brief abstract of the technical disclosure in the specification must commence on a separate sheet, preferably following the claims, under the heading "Abstract of the Disclosure." The purpose of the abstract is to enable the Patent and Trademark Office and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure. The abstract shall not be used for interpreting the scope of the claims.

Therefore, any statements made relating to the abstract are not intended to limit the claims in any manner and should not be interpreted as limiting the claims in any manner.

The embodiments of the invention described herein above in the context of the preferred embodiments are not to be taken as limiting the embodiments of the invention to all of the provided details thereof, since modifications and variations thereof may be made without departing from the spirit and scope of the embodiments of the invention.

What is claimed is:

1. A sealing device comprising:

a resilient sealing cord being positionable in a sealing position against two plate-shaped panels of a machine enclosure, said machine enclosure comprising an inside and an outside, which panels comprise at least one of: wall panels and glass panels, to seal an elongated gap between the panels;

first and second tensioning elements connected to first and second ends of said sealing cord; and

said tensioning elements, upon installation, produce a tension on said sealing cord that is:

sufficiently high to secure said sealing cord in its sealing position;

sufficiently low to allow lifting of at least a portion of said sealing cord out of its sealing position toward the outside of the machine enclosure upon impingement by a pressurized spray of cleaning fluid to permit at least a portion of the spray of cleaning fluid to spray through the elongated gap from inside the machine enclosure to the outside, such that particles of dirt are removed and transported by the spray of cleaning fluid from the inside of the machine enclosure to the outside; and

sufficiently high to move said sealing cord back into its sealing position by said tension upon stopping of impingement by the spray of cleaning fluid.

2. The sealing device according to claim 1, wherein:

said second tensioning element comprises a tensioning ball to contact adjacent end faces of the panels; and

said sealing cord is tensionable and upon tensioning then held in position by said tensioning ball.

3. The sealing device according to claim 2, wherein said first tensioning element comprises a securing element that is to extend over and across the elongated gap to contact both of the panels.

4. The sealing device according to claim 3, wherein said sealing cord comprises a round or oval cross-section, and said sealing cord comprises a signal color to identify hazardous or dangerous areas.

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5. The sealing device according to claim 1, wherein:
 said second tensioning element comprises a thread;
 said sealing device comprises a threaded sleeve connected
 to said first end of said sealing cord; and
 said threaded sleeve is to be screwed into said second
 tensioning element to tension and hold said sealing cord.

6. The sealing device according to claim 5, wherein said
 first tensioning element comprises a securing element that is
 to extend over and across the elongated gap to contact both of
 the panels.

7. The sealing device according to claim 6, wherein said
 sealing cord comprises a round or oval cross-section, and said
 sealing cord comprises a signal color to identify hazardous or
 dangerous areas.

8. The sealing device according to claim 1, wherein said
 tensioning elements are attachable to said sealing cord.

9. The sealing device according to claim 8, wherein:
 said second tensioning element comprises a tensioning
 ball;

said tensioning ball comprises an opening to receive said
 second end of said sealing cord therein; and
 said tensioning ball comprises a clamping pin to clamp said
 second end of said sealing cord in said tensioning ball.

10. The sealing device according to claim 9, wherein:
 said first tensioning element comprises a securing element
 that is to extend over and across the elongated gap to
 contact both of the panels; and
 said securing element comprises a passage therein to per-
 mit said sealing cord to pass therethrough.

11. The sealing device according to claim 8, wherein:
 said second tensioning element comprises a thread;
 said sealing device comprises a threaded sleeve connected
 to said second end of said sealing cord; and
 said threaded sleeve is to be screwed into said second
 tensioning element to tension and hold said sealing cord.

12. The sealing device according to claim 11, wherein:
 said first tensioning element comprises a securing element
 that is to extend over and across the elongated gap to
 contact both of the panels; and

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said securing element comprises a passage therein to per-
 mit said sealing cord to pass therethrough.

13. The sealing device according to claim 12, wherein said
 sealing cord comprises a round or oval cross-section.

14. The sealing device according to claim 8, wherein:
 said second tensioning element comprises a tensioning
 ball;

said tensioning ball comprises an opening to receive said
 second end of said sealing cord therein; and

said tensioning ball comprises a clamping pin to clamp said
 second end of said sealing cord in said tensioning ball.

15. The sealing device according to claim 8, in combina-
 tion with wherein said wall or glass panels comprise two
 plate-shaped panels to form a portion of an said enclosure.

16. The sealing device according to claim 15, wherein:
 said second tensioning element comprises a tensioning
 ball;

said tensioning ball comprises an opening to receive said
 second end of said sealing cord therein; and

said tensioning ball comprises a clamping pin to clamp said
 second end of said sealing cord in said tensioning ball.

17. The sealing device according to claim 16, wherein:
 said first tensioning element comprises a securing element
 that is to extend over and across the elongated gap to
 contact both of the panels; and

said securing element comprises a passage therein to per-
 mit said sealing cord to pass therethrough.

18. The sealing device according to claim 1, wherein said
 sealing cord comprises a diameter that is greater than a width
 of the elongated gap between the panels.

19. The sealing device according to claim 18, wherein:
 said sealing device comprises a securing element that is
 clipped onto the panels;

said first tensioning element, upon installation, presses
 against said securing element; and

said securing element comprises a passage therein having a
 diameter sufficient to permit said sealing cord to pass
 therethrough.

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